EUPHORBIA SPECIES FROM THE FLORA ZAMBESIACA AREA: VII.

L. C. Leach

In 1962 Mr. J. A. Whellan gave to the writer some live plants of an unidentified dwarf Euphorbia which he had discovered near Abercorn in N.E. Zambia. These plants were obviously closely related to *Euphorbia isacantha* Pax, which was originally described "cyathiis et fructibus ignotis"; the consequently incomplete description made it difficult to determine the taxonomic status of the Abercorn plants, at least until *E. isacantha* were better known to the present author. N. E. Brown's more detailed description in Thistleton-Dyer, Flora Trop. Afr. **6,** 1: 575 (1911) did give more grounds on which to base an opinion but there remained an element of doubt.

However, in 1965 some rooted cuttings of *E. isacantha* (*Milne-Redhead* and *P. Taylor* 8643A, from the Matengo Hills, Miyau, Tanzania) were received from Kew, there seems to be no doubt regarding the identity of these as they agree very closely with the published descriptions and the drawing of the type material of *E. isacantha* (the holotype, *Busse* 949, is assumed to have been destroyed but a drawing is preserved at Kew). It should, perhaps, be mentioned that the involucres of the Miyau plants are quite glabrous but this is not considered to be of any significance, particularly as the "minutely puberulous" involucres of N. E. Brown's description were from a loose cyme which may possibly not have belonged to *Busse* 949.

These cuttings were placed in cultivation in the author's garden at Nelspruit and have since flowered; it is consequently now possible to proceed with confidence with the publication of the new species.

Euphorbia whellanii Leach, sp. nov.

E. isacanthae Pax affinis sed tota planta multo parviore; ramis paucioribus minus ramulosis subcylindricis, tuberculis prominentioribus verticaliter 5–7-seriatis; podariis haud decurrentibus; glandulis multo parvioribus transverse oblongis non contiguis foveolatis; stylis multo brevioribus differt.

Fruticulus pumilus spinosus succulentus glabrus basiramifer, ramis plerumque

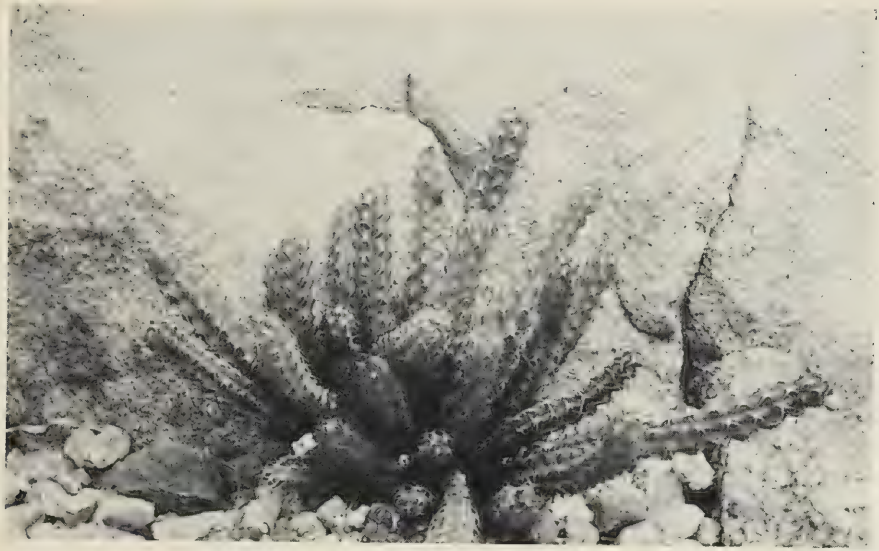
simplicibus, valde confertis. *Rami* subcylindrici (valde sulcati in tempore sicco) tuberculati, ad 17·5 cm longi, 0·35—0·8 cm diam, *tuberculis* ad 1 mm altis, 5–7 plerumque 6-seriatis, verticaliter dispositis (ubi 5-seriatis saepissime in spiram contortis) 3—5 mm distantibus, *Folia* minuta, carnosa, deltoidea, c. 0·5 mm longa, inter spinas binas superiores disposita, mox decidua, cicatricibus plus minusve late obovata. *Podaria* plus minusve obovata, 1—2 mm longa, haud decurrentia, 4-spinifera. *Spinae* binae divergentes ± aequilongae, 2·5—3·5 mm longae, pare superiore suberecto et pare inferiore valde deflexo. *Inflorescentia* cymosa, cyathiis 3, horizontaliter dispositis (interdum cyathio bisexuali unico). *Cyma* perbreviter pedunculata, pedunculo bibracteato, 1·5—2·5 mm longo; bracteae deltatae truncatae denticulatae, c. 1 mm longae; cyathium primum masculinum mox deciduum aut interdum bisexuale persistens unicum; cyathia lateralia bisexualia, cymarum ramis brevissimis, 1·5—2·0 mm longis; bracteae subquadratae dentatae, c. 1·25 mm longae. *Involucrum* infundibuliforme glabrum, c. 2 mm longum, 3·5 mm diam glandulis inclusis; *glandulae* 5, carnosae patulae non contiguae, planae vel leviter convexae marginibus obtusis, transverse oblongae, 1·4—2·0 mm × 0·6 mm, minute foveolatae, flavae; *lobi* 5, plus minusve late cuneati, plerumque aliquantum emarginati, denticulati, c. 1 mm lati. *Flores masculini* 10-12, 5-fasciculati bracteolis latis fimbriato-laciniatis, c. 2 mm longis; pedicelli 2 mm longi; filamenta c. 0·5 mm longa. *Ovarium* sessile, 3-lobatum, subglobosum, perianthio 3-lobato, c. 1 mm diam; *styli* patuli, libri e basi, graciles, apicibus capitatis rugulosis integris, c. 1·5 mm longi. *Capsula* globoso-trilobata, sessilis, c. 4 mm diam, 2·5 mm alta, involucri reliquiis obritis suffulta. *Semen* subglobosum, c. 1·75 mm × 1·5 mm, albidum parum fusco-maculatum, dense verrucosum, verrucarum forma et amplitudine variabilibus.

Type: *J. A. Whellan* 2122 (K; PRE; SRGH, holotype).

Note: The type material has, of necessity, been prepared over a period from plants of the original gathering, now in cultivation at Salisbury and Nelspruit.

ZAMBIA. Northern Prov., near Kawimbe Mission, approx. 8° 50′ S, 31° 31′ E, "in rock crevices with good humus, in association with *Aloe mzimbana* Christian", *Whellan* 2122 (K; PRE; SRGH).

This most interesting dwarf species is known only from the type locality near Kawimbe Mission, which is about 20 miles east of Abercorn, not far from the Zambian/Tanzanian border. Plants are here found growing in crevices on granite slopes "in rather damp situations and in partial shade" (in the writer's experience plants do not survive in cultivation in either Salisbury or Nelspruit unless copiously watered during long dry periods).

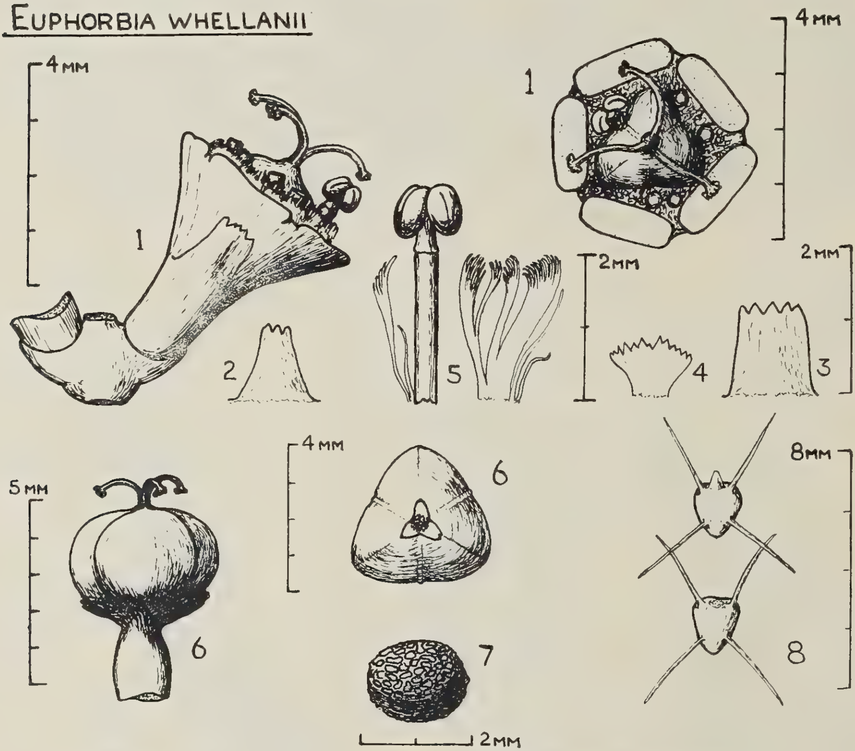


Small plant in cultivation at Nelspruit, ht. c. 10 cm.

Flowering and fruiting branch apices.
Euphorbia whellanii Leach

E. whellanii is, it seems, most closely related to *E. isacantha* Pax from which it differs in being very much smaller in all its parts, with fewer, less rebranched, more prominently tuberculate, subcylindric branches (those of *E. isacantha* are quadrangular) with the tubercles arranged in 5–7 (8) vertical ranks, whilst its smaller spine shields are not at all decurrent. The minutely pitted, transversely oblong, quite separate glands of *E. whellanii* are very different from those of *E. isacantha* which are closely contiguous and often connate; finally the styles of the new species are much shorter than are those of Pax' species.

Plant, a succulent, spiny, dwarf shrublet, generally only a few inches high,



1. Cyathium.
2. Peduncular bract.
3. Cyme branch bract.
4. Involucral lobe.
5. Male flower with bracteoles.
6. Capsule.
7. Seed.
8. Spinescence.

densely branched from the base, with the branches usually simple. *Branches* subcylindric tuberculate (deeply sulcate when suffering from drought), up to 17·5 cm long, 0·35—0·8 cm diam; tubercles up to 1 mm high, arranged 3—5 mm apart in 5–7 (8) vertical ranks (usually 6, when 5 then almost always spirally twisted). *Leaves* minute, deltoid, c. 0·5 mm long, soon deciduous leaving a more or less broadly obovate scar directly between the upper pair of spines. *Spine shields* more or less obovate, 1—2 mm long, not at all decurrent, bearing 4 spines. *Spines* 2·5—3·5 mm long, slender, whitish and rather fragile, arranged in divergent pairs of more or less equal length; the upper pair suberect and the lower strongly deflexed and often more widely divergent than the upper. *Inflorescence* a very shortly pedunculate cyme of three cyathia arranged in a plane at right-angles to the axis of the branch, sometimes reduced to a single bisexual cyathium; primary cyathium male deciduous or sometimes bisexual persistent; lateral cyathia always bisexual; *peduncle* bibracteate, 1·5—2·5 mm long; bracts deltate, truncate denticulate, c. 1 mm long; *cyme branches* very short, 1·5—2 mm long; bracts subquadrate dentate, c. 1·25 mm long. *Involucre* funnel shaped, glabrous, c. 2 mm long, 3·5 mm diam including the glands; *glands* 5, fleshy, spreading, distinctly separate, flat or slightly convex from the rounded margins, transversely oblong, 1·4—2·0 mm × 0·6 mm, minutely pitted, yellow; *lobes* 5, more or less broadly cuneate, usually somewhat emarginate, denticulate, c. 1 mm wide. *Male flowers* 10–12, in 5 fascicles, with broad fimbriate laciniate bracteoles c. 2 mm long; pedicels 2 mm long, filaments c. 0·5 mm long. *Ovary* sessile, 3-lobed subglobose with a 3-lobed perianth c. 1 mm diam; *styles* spreading, free to the base, slender, with the apices capitate rugulose entire. *Capsule* obtusely 3-lobed, sessile, c. 4 mm diam × 2·5 mm high, with the crushed and flattened remains of the involucre persisting at its base. *Seed* subglobose, c. 1·75 mm × 1·5 mm, whitish, slightly and irregularly marked with blackish brown, densely verrucose, with the verrucae somewhat variable in both shape and size.

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Mr. J. A. Whellan, until recently Acting Chief Entomologist, Dept. of

Agriculture, Salisbury, Rhodesia and now Senior Entomologist to the Government of Malawi, who has collected widely in southern tropical Africa and for whom the new species is now named, for living plants of *E. whellanii* as well as many other succulent plants from various localities.

When Pax described *Euphorbia griseola* in 1904 the species was known only from southern Botswana (Bechuanaland Prot.), but is now known to occur, albeit with a somewhat scattered distribution, as far north as Zambia and Malawi; it does, over this wide range and under the diverse ecological conditions encountered, comprise a very variable complex of almost dwarf plants to large shrubs of tree-like habit, the whole being united by identical floral and fruiting characters.

The present writer has studied this complex and the taxonomic problems involved over a number of years, both in the field and from plants in cultivation, and has reached the conclusion that it would be as unrealistic to "lump" it into one variable taxon as to recognise several groups at specific level.

Despite the difficulty which may sometimes be experienced in identifying herbarium specimens, other than through the locality, it is felt that two of the taxa concerned are so distinct from the typical small shrubs that some nomenclatural separation is desirable, especially as populations of these plants are often an important constituent of the communities of which they form a part. In view of their discrete distributions and the fact that the populations and especially the juveniles (particularly those of subsp. *mashonica*) are usually immediately distinguishable, recognition of these taxa at subspecific level seems to be the most logical course and has been followed in the ensuing treatment. Although this is unsatisfactory in some respects, as compromises are bound to be, it is considered to reflect the essentials of the taxonomic position, whilst avoiding the undue nomenclatural complication which would follow the recognition of numerous varieties and forms.

White, Dyer and Sloane (The Succ. Euphorb. **2:** 775, 1941) suggested that plants from the Matopos Hills were likely to be more closely related to *E. heterochroma* Pax than to *E. griseola* and (*tom. cit.:* 781) tentatively identified specimens from northern Mashonaland with the former species; this view seems to have been accepted by subsequent writers.

However, *E. heterochroma* is essentially an East African species and differs from *E. griseola* in a number of characters. *E. heterochroma* is, in general, much less rebranched and rather more robust with more regularly 4-angled branches which are usually less prominently tuberculate; the leaf scars are more or less very broadly obovate or obtriangular but those of *E. griseola* are less distinct and more or less circular; the involucres and involucral glands are a different shape and, most important of all, the seeds of *E. heterochroma* are verrucose whilst those of *E. griseola* are smooth. White, Dyer and Sloane (*tom. cit.*: 780) describe the seed of the former species as smooth but this is thought to be an error, based possibly on misidentified material from Rhodesia, as all seeds of *E. heterochroma* seen by the writer have been verrucose; that this is a specific character of this taxon has also been confirmed by Mr. P. R. O. Bally (personal communication).

A key to the subspecies follows:

Shrubs without or with very much reduced main stem:
  Branches not or only slightly and distantly constricted, spine shields usually united into a continuous or subcontinuous horny margin, distributed mainly in Botswana, Rhodesia and Transvaal .. .. subsp. *griseola*
  Branches distinctly segmented, spine shields often distinctly separate and obovate in shape; distribution confined to Zambia and possibly the Congo (Leo.) .. .. .. subsp. *zambiensis*
Shrubs of tree-like habit with a slender, many-angled central stem; distributed mainly in the north of Rhodesia .. .. subsp. *mashonica*

Euphorbia griseola Pax in Engl. Bot. Jahrb. **34:** 375 (1904).—N. E. Brown in Th. Dyer, Fl. Trop. Afr. **6,** 1: 578 (1911) and in Fl. Cap. **5,** 2: 364 (1915).—Burtt-Davy, Fl. Pl. and Ferns Transv. and Swazil. **2:** 296 (1932).—White, Dyer and Sloane, Succ. Euphorb. **2:** 774 (1941).—Jacobsen, Handb. Succ. Pl. **1:** 436 (1960).—Goodier and Phipps, Chimanimani Check List, in Kirkia **1:** 58 (1961).—Type: Botswana (Bechuanaland Prot.), Lobatsi, *Marloth* 3413 (B†).

Neotype: Lobatsi, *Leach* and *Noel* 121 (BR; G; K; LISC; PRE; SRGH).

(The holotype material was probalby destroyed in Berlin in 1943; as no duplicate has been located, *Leach* and *Noel* 121 has been selected as the neotype).

Euphorbia griseola Pax var. *robusta* Pax ex Engler, in Pflanzenformat. Transv. and S. Rhod., Sitz and Preuss, Akad. Wiss. Berl. **52:** 881 (1906), nom. nud.—ex Eyles in Trans. Roy. Soc. S. Afr. **5:** 398 (1916), nom. nud.

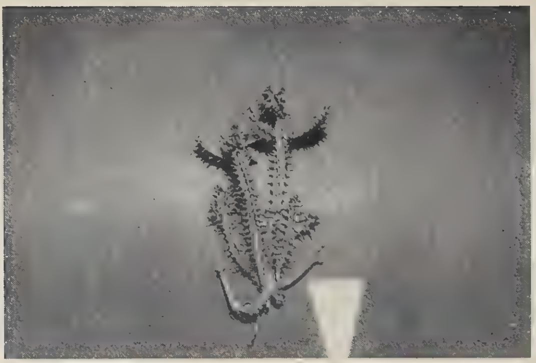
(This variety was based on the specimen *Engler* 2860B from the Matopos, Rhodesia: for description see N. E. Brown, in synonymy under *E. griseola, loc. cit.*).

Euphorbia heterochroma sensu White, Dyer and Sloane, tom. cit.: 780, pro parte quoad distrib. Rhodesia et fig. 873 (1941).—sensu Wild, Dict. Pl. Names: 83 (1952).

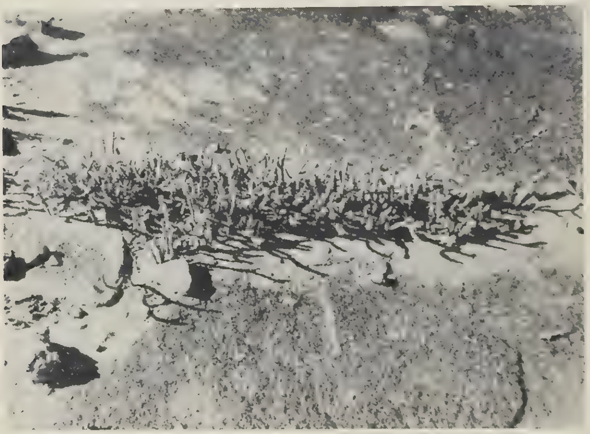
Euphorbia ledienii sensu Suesseng. apud Suesseng. and Merxm. in Trans. Rhod. Sci. Ass. **43:** 84 (1951).

Subsp. **griseola**

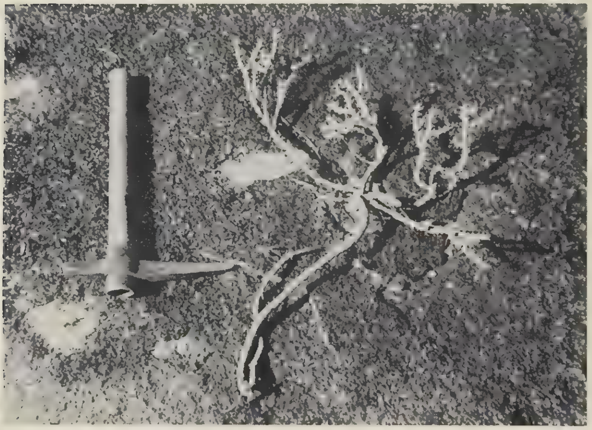
Small shrubs or undershrubs, generally less than 1 m high, with 4/6-angled branches and branchlets which are not or only slightly constricted at distant intervals, with continuous or subcontinuous horny margins which are only very



Typical seedling from
Matopos Hills, Rhodesia.
Coll. Mrs. E. J. Bullock.



Rhizomatous dwarf
plants near
Chibi, Rhodesia.
L. C. Leach 9314.



Subsp. **griseola**

rarely, regularly interrupted at the flowering eyes. Main stem absent or reduced to a mere "crown".

BOTSWANA. N: ± 50 mls. N, Francistown, *Leach* and *Noel* 27 (K; PRE; SRGH); Totome, prope Francistown, *Lamont* s.n. in *Leach* 11704 (PRE). SE: Lobatsi, *W. J. Louw* s.n. (PRE; SRGH); 2 mls. N, Lobatsi, 16.i.1960, *Leach* and *Noel* 121 (BR; G; K; LISC; PRE; SRGH); Notwani, *J. Knobel* s.n. (PRE); 8 mls. S, Gaberones, 19.i.1960, *Leach* and *Noel* 219 (PRE; SRGH; ZSS).

RHODESIA. N: Mrewa, Chibakwe Riv., fl. 23.vii.1959, *Leach* 9233 (K; PRE; SRGH); ± 5 mls. N, Mrewa, fr. 23.vii.1959, *Leach* 9235 (K; PRE; SRGH; ZSS). W: Matopos, *Marloth* 6194 (PRE), *Mogg* s.n. (PRE), *Plowes* 1380 (SRGH), "Besna Kobila", *Miller* 4574 (PRE; SRGH), *Miller* 6009 (SRGH), "Siloswe koppie", *Ferrar* s.n. (PRE); Plumtree, *Van Son* s.n. (PRE). C: ± 5 mls. SE, Inyazura, fr. xii.1956, *Leach* 5141 (CAH; G; K; PRE), ibid. *Leach* 9833 (PRE; SRGH), ibid. fl. fr. 24.ix.1965, *Leach* and *Müller* 13138 (BM; BR; K; PRE; SRGH; ZSS); Marandellas Distr., *Dehn* 681 (fig. SRGH); Rusapi, Chiduku Res., *Plowes* 2467 (PRE; SRGH). E: prope Bonda Mission, *Leach* 10772 (K; PRE; SRGH); Sabi/Lundi Riv. Junction, *Plowes* 2466 (G; K). S: ± 5 mls. W, Beitbridge, *Leach* 11585 (G; K; LISC; PRE; SRGH); ± 2 mls. S, Chibi Village, *Leach* 9314 (PRE; SRGH); prope Zimbabwe, fr. 12.i.1961, *Leach* 10711 (BM; BR; G; K; LISC; PRE; SRGH); Kyle Dam, 5.xii.1960, *Leach* 10557 (PRE); "Igar" prope West Nicholson, *Leach* and *Bullock* 13323 (PRE; SRGH).

REP. S. AFRICA. Transvaal: Waterberg Distr.: 23°S, 27°E, prope Elmeston, *Codd* and *Erens* 4017 (PRE; SRGH); Riebeeck W., *Van der Merwe* 1752 (PRE); 24°S, 27°E, ± 5 mls. NW, Rooiberg, *Leach* and *Bayliss* 11192 (SRGH); Rooiberg-Matlabas road, *Holloway* 493 (PRE); 24°S, 28°E, 7 mls. NE, Nylstroom, *A. O. D. Mogg* 16613 (PRE). Rustenberg Distr.: 24°S, 27°E, Krantzberg, *I. B. Pole-Evans* 2381 (PRE), ibid. *Dyer, Verdoorn* and *Erens* 4203 (PRE); "Kareehoek", *L. E. Codd* 3751 (PRE), ibid. *Van der Merwe* 1692 (PRE); 24°S, 27°E, prope Thabazimbi, *Van der Merwe* s.n. (PRE). Pretoria Distr.: 25°S, 28°E, Rust der Winter, *R. A. Dyer* 3978 (PRE).

MOÇAMBIQUE. Z: Ile Mts., *Torre* 5695A (LISC). MS: "The Corner", Chimanimani Mts., *Phipps* 841 (SRGH).

MALAWI. S: prope Ntaja, fl. 10.viii.1960, *Leach* 10419 (K; LISC; PRE; SRGH).

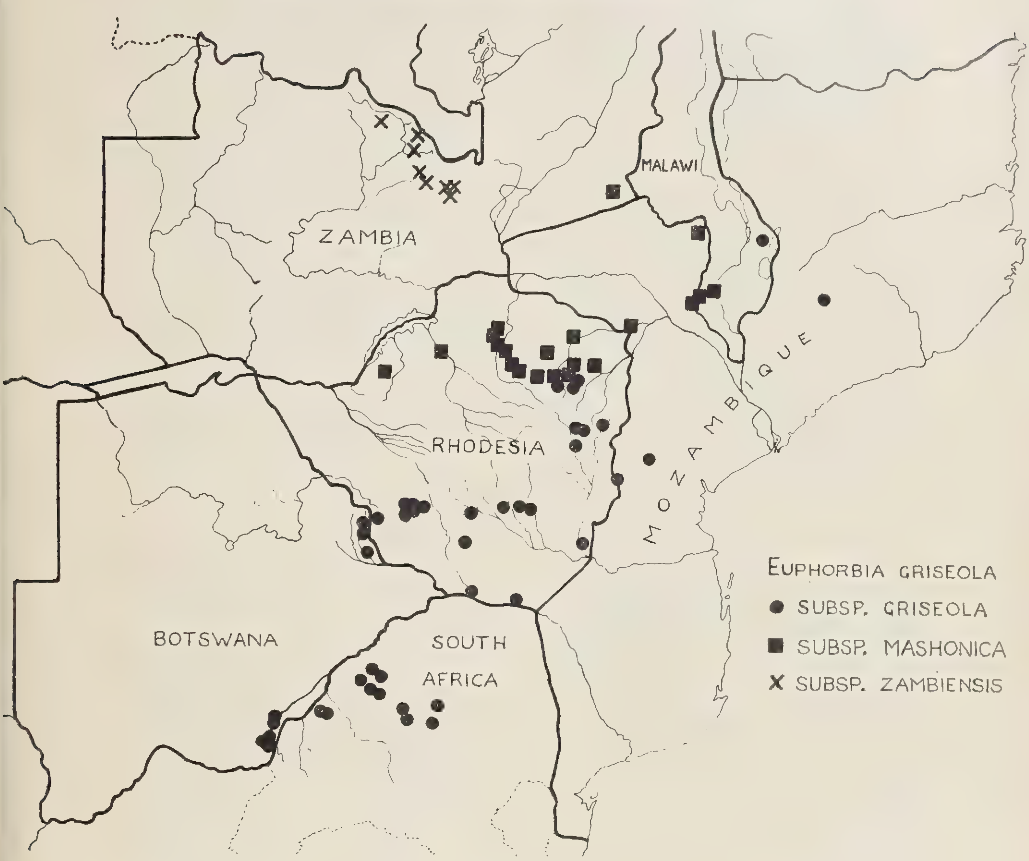
The typical subspecies is widely distributed in somewhat scattered colonies which exhibit a considerable degree of variation, both in habit and in vegetative characters.

At the type locality near Lobatsi and elsewhere in southern Botswana plants form densely ramose shrubs up to c. 1 m high (usually less) with the branches not at all, or rarely, slightly constricted into segments and with the horny margins quite continuous or very rarely interrupted at the flowering eye. North-east of Francistown, towards the Rhodesian border, specimens are taller (up to 2 m), more sparingly branched and rebranched with the branches constricted at distant intervals; another isolated colony, more typical in habit is to be found on sandstone rocks on the north bank of the Limpopo Riv. some 5 miles west of Beitbridge.

The taxon is rather sparsely represented in the Transvaal where plants sometimes adopt a more spreading, partially prostrate habit. Scattered colonies occur throughout the granite hills of the Matopos in Matabeleland, here plants are slightly more robust than those at the type locality and appear to have been considered by Pax as being distinct at varietal level, however, when the species as now defined is viewed as a whole it seems that no taxonomic recognition is warranted.

The distribution of subspecies *griseola* continues in a rather disjunct series of populations along the granite hills and domes stretching more or less east and north-east from the Matopos. There are a few very isolated populations in mountainous areas of Moçambique and Malawi which seem to belong here but complete information regarding these is, as yet, lacking. Of these the colony near Ntaja, to the south-east of Fort Johnston in Malawi, merits mention as the inflorescence is entirely dark purplish red whilst the plants, although apparently somewhat depauperate, otherwise seem to agree closely with the typical form, as do those from the Chimanimani Mountains which also bear dark crimson inflorescences; it may well be that on further investigation these as well as plants from the Ile Mts. and others growing on Mt. Zembe, both in Moçambique, will be found to be taxonomically distinct, meanwhile they have been included in the writer's concept of subspecies *griseola*. Another noteworthy form occurs just south of Chibi Village in Rhodesia, in which the semi-dwarf plants, generally less than 30 cm high, have relatively slender, not at all constricted, usually simple branches with conspicuous whitish horny margins and often develop a rhizomatous habit.

Near Mrewa and elsewhere in northern Mashonaland where populations of subspecies *griseola* and *mashonica* are occasionally found in close proximity, plants often adopt a more spreading habit which exposes the much reduced, few-angled main stems ("crowns" would perhaps be a better description) from which the branches arise. Plants from near Inyazura are generally of this pattern and also often produce much larger more spathulate leaves than are to be found elsewhere. Plants of similar habit but with rather more robust branches occur at scattered points along the Sabi River.



Subsp. **mashonica** Leach, subsp. nov.

Euphorbia griseola sensu Boughey, Check List Trees S. Rhod. in Journ. S. Afr. Bot. **30:** 162 (1964).

A subspecie typica habitu arboreo multo altiore; trunco centrali multiangulato aliquantum exili; ramis ramulisque verticillatis ascendentibus erectis differt.

TYPE: Mazoe Distr., Rhodesia, *L. C. Leach* 5019 (B; BM; BR; G; K; LISC; LMJ; M; NDO; PRE; SRGH, holotype; ZSS).

Rhodesia. N: ± 2 mls. NE, Mtoko, *Leach* 9245 (PRE; SRGH); ± 10 mls. NE, Mrewa *Leach* 9256 (K; PRE; SRGH); Umfurudzi/Mazoe Riv. Junction, fl. 7.viii.1959, *Leach* 9267 (BM; K; M; PRE; SRGH; ZSS); Umvukwes, Ruorka Ranch, *Wild* 3962 (SRGH); Darwin Distr. Unsengedzi Riv., *Wild* 3997 (SRGH); ± 35 mls. E, Mt. Darwin, 8.viii.1959, *Leach* 9290 (PRE; SRGH); Mazoe Distr., ± 12 mls. NNW, Concession, ± 17° 18′ S, 30° 50′ E, cult. "Farview", fl. fr. *Leach* 5019 (B; BM; BR; G; K; LISC; LMJ; M; NDO; PRE; SRGH; ZSS), ibid. *Leach* 9514 (PRE); Angwa Riv. inter Mangula et Miami, fl. 5.vii.1964, *Jacobsen* (PRE); Umvukwes, "Andrew's Farm", *Eyles* 5449 (SRGH); Mazoe, *Eyles* 585 (SRGH); Ganderowe Falls, Sanyati Riv., W. bank, fl. 4.vii.1961, *Leach* 11170 (BR; G; K; LISC; PRE; SRGH); Sebungwe Distr., Ngolongolo Gorge, *Whellan* 536, (SRGH), idem, cult, *Leach* 9515 (PRE; SRGH). C: Chinamora Res. Domboshawa, *Eyles* 5160 (SRGH); *Loveridge* 1186, 1187 (SRGH); "Mawenga" *Simon* 969 (SRGH); Arcturus Distr. "Ewanrigg" *Christian* 5, 6 and 457 (PRE); Cleveland Dam, *Brain* 9517 (SRGH).

Malawi. S: Mpatamanga Gorge, Shire Riv., *Leach* 9924 (K; PRE; SRGH); ± 3 mls. E, Mwanza, *Leach* 5088 (PRE).

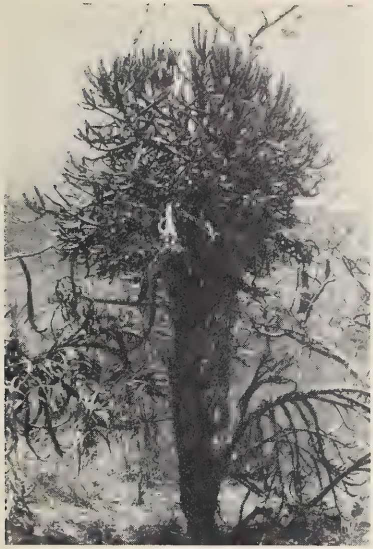
Moçambique. T: Mazoe Riv. prope Rhodesian Border, *Whellan* s.n., 21931 in SRGH (SRGH); Angónia, Vila Mousinho, *Gouveia* and *Pedro* 1869 (LMJ); Zóbuè Mts., *A. R. Torre* 5754 (LISC).

Zambia. E: Nzadzu Riv., *Robson* 23 (PRE; SRGH).

Subspecies *mashonica* may be immediately distinguished from the other taxa in the complex by its rather slender, many-angled (9—12) main stem and its much taller tree-like habit. Plants often attain a height of 3·5 m or more although usually somewhat smaller; under certain conditions a few trunk-like spreading branches are developed, usually from near the base of the trunk and so show a slight reversion to the shrubby form while in other cases the trunk is covered with a dense mass of spiny shoots which give the trunk an appearance of stoutness, emphasising the tree-like aspect.

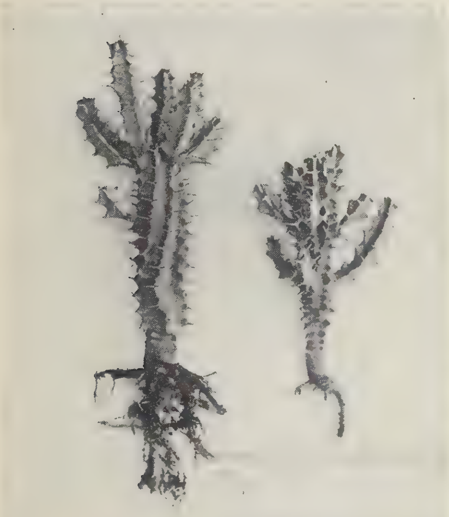
Individuals lacking a main trunk but developing several trunk-like branches and occasionally developing into large densely ramose shrubs up to 4 m in diameter are considered to be best referred to subsp. *mashonicai*, although to some extent intermediate, this habit may have been due to damage to the growing point of the main stem in its juvenile state. Northward towards the Zambesi escarpment plants tend to become less densely and more divaricately branched; they then bear a superficial resemblance to the arborescent forms of the related polymorphic species *E. persistentifolia* Leach, which occurs on the Southern escarpment.

Towards the limit of distribution, to the north-east in Moçambique and



Plant in open, with densely branched head. Ht. ±2·6 m.

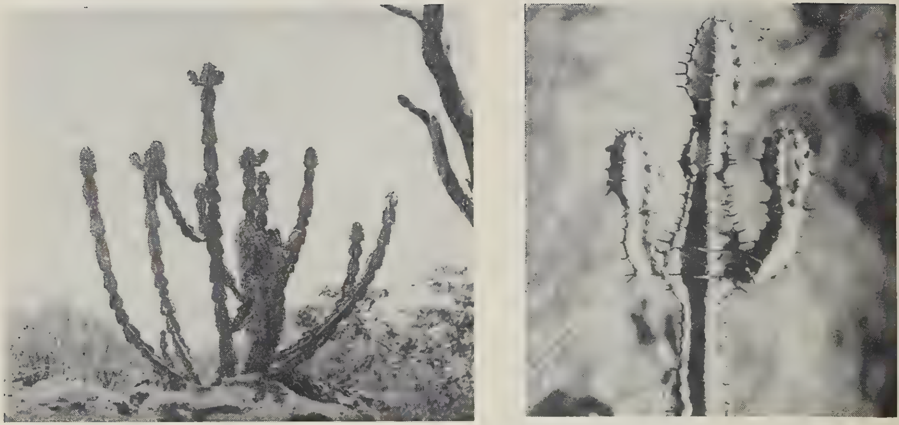
Slender stemmed specimen in tree shade. Ht. ±3·3 m.



Typical seedlings showing early development of multi-angled stem.

Apex of flowering branch. Hort. Greendale.

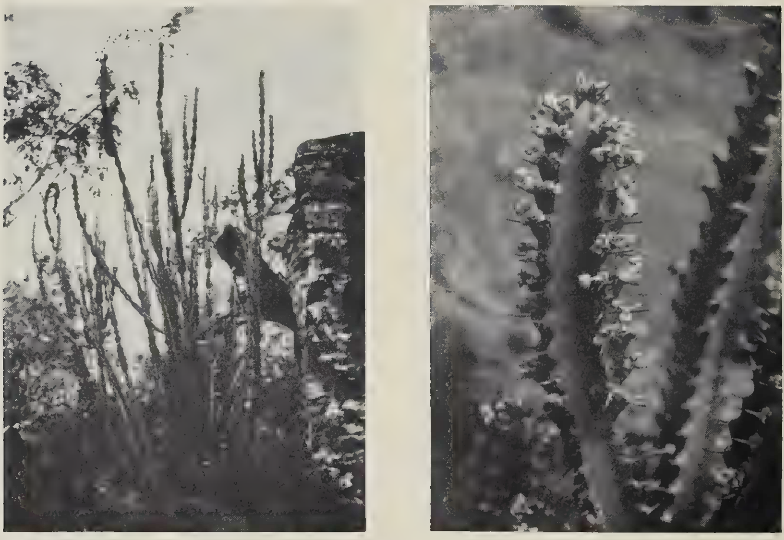
Subsp. **mashonica**
L. C. Leach 5019, Type locality



Typical plant. Ht. ±0·7 m.

Branch with separate obovate spine shields.

Leach & Williamson 13548, N of Kapiri Mposhi.



Typical Plant. Ht. ±2m.

Flowering branch. Hort. Greendale.

Subsp. **zambiensis**
Leach & Brunton 10019, Type locality

Malawi, plants tend to be of smaller, less arborescent stature and to be more randomly branched. A gathering by Robson from Nzadzu Riv., south-west of Fort Jameson in the Eastern Province of Zambia, is of this pattern.

In many parts of northern Mashonaland these slender stemmed shrubs represent a significant proportion of and are a characteristic feature of the vegetation of the granite hills and kopjes to which they appear to be specially adapted (probably by reason of fire tenderness).

Subsp. **zambiensis** Leach, subsp. nov.

A subspecie typica ramis paucioribus crassioribus in segmentis distinctis constrictis; saepe podariis obovatis nonconfluentibus differt.

Type. Zambia, Central Prov., Kapiri Mposhi, ± 13° 45′ S, 29° 03′ E, *Leach* and *Brunton* 10019 (K; LISC; NDO; PRE; SRGH, holotype).

Zambia. W: Chingola, *Fanshawe* 3821 (NDO); C: Kapiri Mposhi, *Fanshawe* 7148 (NDO); ± 35 mls. E, Kapiri Mposhi, *Leach* and *Brunton* 10019 (K; LISC; NDO; PRE; SRGH); Mkushi Boma, *Williamson* s.n. in *Leach* 13537 (BM); ± 18 mls. N, Kapiri Mposhi, *Leach* and *Williamson* 13548 (BR; G; LISC; M; ZSS).

The distribution of this taxon appears from the records to be restricted to Zambia but its occurrence in neighbouring parts of the Congo seems probable.

As may be seen from the photographs, plants at the type locality, between Kapiri Mposhi and Mkushi Riv., with their distinctly segmented stouter branches and often with nonconfluent obovate spine shields, differ markedly from the typical *E. griseola* and would probably be considered to be distinct at specific level were it not for the identical flowering and fruiting characteristics and the similarity existing between occasional individuals in the Copperbelt area and plants of the typical subspecies from the Matopos Hills.

Note. In locating the cited specimens geographically, two systems have been followed:

(1) The divisions of the Flora Zambesiaca area as shown on the map accompanying Vol. **1** of Flora Zambesiaca (1960), for those records falling within the area (Botswana, Malawi, Moçambique, Rhodesia and Zambia).

(2) The Magisterial Districts with the addition of the approximate Lat. and Long., indicating the 1° square in which the specimen is sited, for localities within the Republic of South Africa.

The localities plotted on the distribution map include, as well as those cited, a few known to the author but for which no herbarium records are known.

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